

lation, temperature was below normal in 4, above in 1, and exactly normal in 1.

That temperature is not always controlled by insolation seems evident from the above. The station having the greatest sunshine, Yuma, Ariz., 91 per cent, had also a temperature 1.5° below normal, while the station having the next to the least sunshine, Eastport, Me., 14 per cent, had at the same time a temperature 2.3° above normal. The low temperature at Yuma might be explained by the fact that two-thirds of the observed winds were from a northerly, and consequently colder quarter, while but one-tenth was from a southerly or warmer quarter. At Eastport much the same conditions prevailed, but with different results as to temperature; 50 per cent of the observed winds were from a northerly quarter, and but 23 per cent from a southerly quarter. We must assume that in the latter case the local winds at Eastport were but a part of a much larger mass of air of relatively higher temperature than usual, and this seems to have been the case. (See remarks of Prof. R. F. Stupart, page 499, of this REVIEW.)

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.3	+0.7	Missouri Valley	4.7	-0.2
Middle Atlantic	5.3	+0.6	Northern Slope	4.6	0.0
South Atlantic	5.1	+0.6	Middle Slope	4.0	+0.4
Florida Peninsula	5.0	+0.4	Southern Slope	3.8	+0.6
East Gulf	5.3	+0.8	Southern Plateau	1.9	-0.4
West Gulf	5.3	+0.7	Middle Plateau	4.3	+1.2
Ohio Valley and Tennessee.	3.8	+0.1	Northern Plateau	7.2	+1.2
Lower Lake	7.2	0.0	North Pacific Coast	7.6	+0.8
Upper Lake	6.7	-0.3	Middle Pacific Coast	4.3	+0.5
North Dakota	4.6	-0.5	South Pacific Coast	2.0	-0.9
Upper Mississippi Valley...	4.8	-0.4			

ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table IX, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and

auroras (A) in each State and on each day of the month, respectively.

Thunderstorms.—Three hundred and thirty-three reports of thunderstorms were received during the current month as against 511 in 1897, and 619 during the preceding month.

The dates on which the number of reports of thunderstorms for the whole country were most numerous were: 5th, 133; 21st, 29; 4th, 27; 9th, 25.

Reports were most numerous from Ohio, 48; Illinois, 40; Louisiana, 33; Missouri, 23.

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, 1st, and from the 23d to the 30th.

The greatest number of reports were received for the following dates: 11th, 10; 3d and 21st, 5; 14th, 4.

Reports were most numerous from Montana, 11; Ohio, 7; North Dakota and Wisconsin, 5.

In Canada.—Auroras were reported as follows: Father Point, 3, 11, 21; Quebec, 2, 3, 11, 21; Port Arthur, 12; Minnedosa, 13, 21, 22; Qu'Appelle, 20, 21, 22; Swift Current, 21, 22; Battleford, 22, 23, 24; Prince Albert, 21, 22, 23.

The only thunderstorm reported was from Yarmouth, 6th.

NOTES ON THE WEATHER OF THE WEST INDIES.

The weather was generally tranquil at all stations. A small disturbance was reported near Trinidad on the 6th, but it apparently disappeared by the morning of the 7th.

Thunderstorms were observed as follows: Colon, 3d, 12th, 14th, 16th, 19th; Bridgetown, 10th, 11th; Curaçao, 6th, 8th, 9th.

Nephoscope observations were generally begun during the month.

The telegraphing of weather reports for the season ceased on the 16th.

At this writing (January 6, 1899) the regular monthly reports for November from Kingston, Santiago, Santo Domingo, and Port of Spain have not been received.

CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective sections of the Climate and Crop Service. The name of the section director is given after each summary.

Rainfall is expressed in inches.

Alabama.—The mean temperature was 50.2° , or 3.3° below normal; the highest was 87° , at Goodwater on the 6th, and the lowest, 12° , at Oneonta on the 27th. The average precipitation was 5.60, or 2.64 above normal; the greatest monthly amount, 9.78, occurred at Healing Springs, and the least, 1.61, at Valleyhead.—*F. P. Chaffee.*

Arizona.—The mean temperature was 51.5° , or 1.0° below normal; the highest was 96° , at Parker on the 6th, and the lowest, 3° , at Flagstaff on the 9th and 12th. The average precipitation was 0.56 or 0.14 below normal; the greatest monthly amount, 1.75, occurred at Lochiel, and the least, trace, at Benson, Fort Mohave, Gila Bend, and Winslow.—*W. G. Burns.*

Arkansas.—The mean temperature was 47.5° , or 3.2° below normal, and is the lowest for November on record; the highest was 87° , at Stamps on the 5th, and the lowest, 9° , at Mossville on the 22d, and at Winslow on the 23d. The average precipitation was 3.20, or 0.98 below normal; the greatest monthly amount, 6.46, occurred at Elon, and the least, 1.50, at Lacrosse.—*E. B. Richards.*

California.—The mean temperature was 51.6° , or 1.3° below normal; the highest was 102° , at Pomona on the 7th, and the lowest, 11° below

zero, at Bodie on the 25th. The average precipitation was 0.99, or 1.20 below normal; the greatest monthly amount, 9.98, occurred at Crescent City, while none fell at many stations.—*W. H. Hammon.*

Colorado.—The mean temperature was 31.2° , or 3.1° below normal; the highest was 85° , at Minneapolis on the 7th, and the lowest, 20° below zero, at Breckenridge on the 22d. The average precipitation was 0.98, or 0.22 above normal; the greatest monthly amount, 4.14, occurred at Ruby, and the least, trace, at Hugo and Las Animas.—*F. H. Brandenburg.*

Florida.—The mean temperature was 65.0° , or normal; the highest was 94° , at Lakemont on the 4th and 5th, and the lowest, 30° , at Wausau on the 24th and 30th. The average precipitation was 2.57, or about normal; the greatest monthly amount, 7.53, occurred at De Funiak Springs, and the least, 0.40, at Lemon City.—*A. J. Mitchell.*

Georgia.—The mean temperature was 51.4° , or 3.1° below normal; the highest was 89° , at Hawkinsville on the 6th, and the lowest, 11° , at Diamond on the 27th. The average precipitation was 4.99, or 2.74 above normal; the greatest monthly amount, 7.90, occurred at Blakely, and the least, 2.96, at Cedartown.—*J. B. Marbury.*

Illinois.—The mean temperature was 38.0° , or 1.1° below normal; the highest was 80° , at Danville on the 4th, and the lowest, 6° below zero, at Lanark and Scales Mound on the 27th. The average precipitation was 2.21, or 0.73 below normal; the greatest monthly amount, 4.24, occurred at Atwood, and the least, 0.99, at New Burnside. Winter wheat and rye have made a heavy growth and are strong, vigorous, and well rooted. The growth has been so rank in many counties that wheat has been pastured. Generally the plants are in fine condition, although some damage by hessian fly is reported from central and southern counties.—*C. E. Linney.*